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UNIVERSITY OF ALBERTA

PERSONALITY TYPE PREFERENCES OF CHILDREN WITH AND WITHOUT LEARNING DIFFICULTIES

BY

SUSAN DANIELSEN

(C)

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF EDUCATION

IN

SCHOOL PSYCHOLOGY

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

EDMONTON, ALBERTA

FALL, 1991

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Abstract

This exploratory study was designed to further research the relationship of personality type, as measured by the Murphy - Meisgeier Type Indicator For Children (MMTIC), to classroom performance. It investigated whether elementary children experiencing learning difficulties in the regular classroom exhibit unique psychological type characteristics or preferences when compared to those students not experiencing difficulties. A sample of students referred to the University of Alberta Education Clinic due to learning difficulties in reading, spelling, language arts, or arithmetic (N=84) were compared, on the basis of psychological type, firstly to the normative MMTIC manual sample (N=1499) and secondly to a regular class sample (N=185) of students from a Catholic school in Fort Saskatchewan. Contingency type table analyses indicated that children who indicated introverted, intuitive, feeling and perceiving (INFP) type preferences were overrepresented in the clinic sample of students referred for learning difficulties. Implications of being an INFP child in elementary school, and suggestions for teaching INFP children are discussed, as well as potential uses of the MMTIC. Educational implications are tentative, but making parents, teachers and students aware of the possible influences of typological preferences may be the first step in using type to enhance students' learning potential in the classroom.

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I. INTRODUCTION

How can we help children who are experiencing learning difficulties at the elementary school level? This question haunts parents, educators and administrators alike, as there exist no simple answers nor any "sure-fire" remedies. It remains puzzling why students with seemingly adequate intellectual ability fail to succeed in a regular classroom. Until recently, explanations for the discrepancy between students' abilities and their scholastic achievement have emphasized intellectual factors such as those measured by IQ and aptitude tests. Unfortunately, researchers have been unable to build a firm foundation upon which to "prescribe better instructional methods and curricula to improve the quality of education for all children" (Saracho, 1983, p. 188), or for children with learning difficulties in particular. In their quest for more acceptable and effective solutions, however, educators and researchers are becoming more open to vastly different approaches and possibilites, including those which look beyond intellectual or cognitive factors.

"These nonintellectual or noncognitive variables have been referred to as temperament, personality type, attitude, self-concept, learning style, and cognitive style" (Fourqurean, Meisgeier & Swank, 1988). As educators, psychologists and researchers begin to think more in terms of personality variables in relation to learning and

functioning in the classroom (Marjoribanks, 1986), it appears plausible that a concept such as learning style or temperament could "be a mediating factor in learning situations and a predictor of intellectual achievement" (Palisan, 1986, p. 766).

Interest in the learning styles of children is not restricted to the study of normally achieving students. Bireley and Hoehn (1987) reported that research in the field of learning disabilities has begun to focus on this area as well. In the past, research into learning disabilities has tended to emphasize the deficits of students who are having difficulty, rather than their strengths. Bireley and Hoehn proposed that students with learning difficulties should be viewed in relation to a model which emphasizes normal learning style preferences and differences. This proposed framework is in agreement with the work of Shinn-Strieker (1986), who found that "specific separate learning styles are common to all children and not only to children with learning disabilities" (p. 575).

Stott (1985) reviewed studies related to the question "Learning style or intelligence?" and found that measures of learning style in young children are as good as or better predictors of "future attainment than IQ, which confirms the importance of learning style as a determinant of school success" (p. 172). Although empirical studies of learning style and its relation to intellectual ability and

achievement are scarce, many do propose, as does Marjoribanks (1986) that "relations between children's school-related outcomes and measures of their cognitive ability and learning environments differ as a function of their personality style" (p. 330).

Personality style is addressed with the renewed interest in using Jungian psychological type theory in educational contexts as a new avenue through which to investigate learning difficulties. Jungian type theory is operationalized by the Myers-Briggs Type Indicator (MBTI) (Myers, 1962) and the Murphy-Meisgeier Type Indicator For Children (MMTIC) (Meisgeier & Murphy, 1987a). The MBTI is a paper and pencil measure of people's self-reported preferences for the way they take in information, make decisions about the information and approach life in general. It is an instrument which requires a forced-choice response between two items and which categorizes individuals into four bipolar scales: extraversion-introversion, sensing-intuition, thinking-feeling and judging-perceiving. (For a more detailed description of the four scales please see Chapter 2.) There are sixteen possible type preference combinations which result from MBTI scores.

The MMTIC is conceptually similar to and is based on the MBTI, but the questions are worded for children in grades two through eight. The MMTIC yields the same sixteen possible types, yet the MMTIC differs theoretically from the

MBTI in that there is the possibility of children scoring in an "undetermined" or U-band range on each bipolar dimension. If, for instance, children do not exhibit a preference for extraversion or introversion, their score on that scale is said to be undetermined; they have not yet developed a specific preference.

The measurement of learning preferences and psychological type preferences in particular is, according to Fourqurean, Meisgeier and Swank (1990), "a fairly recent endeavor where we continue to deal with vaguely defined constructs" (p. 236). However, with the development of the MMTIC, it is now possible to specifically identify, and therefore conduct research related to psychological type preferences in elementary school aged children. Based on the limited amount of research with the MMTIC to date, it is possible that the indicator may "prove a highly practical instrument yielding results that are readily interpretable to the classroom situation" (p. 237).

Realistically, there has been very little research conducted with, and almost no literature published on the MMTIC, yet it is being increasingly used with children in both educational and counselling settings. Only with further research will it "be possible to conclude to what extent personality is an organising force that guides interactions between children's individual characteristics, their learning environments, and eventual educational

attainments" (Marjoribanks, 1986, p. 330). To add to the very sparse MMTIC research base, and to further exploration of the influence of personality variables on scholastic achievement, the present study examines psychological type preferences of normally achieving students and those with learning difficulties in the regular elementary school classroom.

II. REVIEW OF THE LITERATURE

The purpose of this chapter is to examine existing literature and research relevant to Jungian psychological type theory, operationalized by the MBTI and the MMTIC, and to explore how type theory relates to children and to elementary school education. Following a discussion of general personality theory, trait theory and Jung's specific theory of types, this presentation will describe the two type indicators mentioned earlier, provide a rationale and theoretical support for use of type with children, and then focus on current research findings that can be specifically related to the implications of type for elementary education. A critical evaluation of available research and literature will precede a presentation of the particular questions to be asked in this study.

Personality Theory

What is personality? Each of us has an intuitive knowledge or understanding of what is meant by the word personality. We speak of individuals having "a lot of personality", or "a great personality", or having "no personality at all", yet a precise, descriptive definition of the term is difficult to find. Within psychology there are as many different definitions, indeed as many theories, of personality as there are individuals who study the topic. Despite this vast array of definitions from a variety of psychoanalytic, environmental, behaviorist or social

learning perspectives, recurring common elements regarding what constitutes personality can be identified.

There is consensus among most theorists that personality consists of characteristics or qualities within a person or individual. These characteristics are relatively stable, meaning that they do not change drastically with each new situation, and are usually long lasting qualities which endure throughout a person's lifetime. In social situations, such characteristics may be readily observable to others through an individual's overt behavior, while during private or personal times they may be unobservable. Similarly, there are aspects of personality which are available to the individual at a conscious level, and others which remain in the unconscious, and of which one is not immediately aware (Ewen, 1988, chap. 1).

Personality Trait Theory

The characteristics discussed above which comprise personality are commonly called "traits" by some theorists (Allport and Cattell cited in Hergenhahn, 1984; Comrey, Eysenck and Guilford cited in Stagner, 1977). Although these theorists have devised specific trait theories of their own, there are again some common threads. The basic tenet of trait theory is that personality is comprised of underlying attributes, general functional units or structures termed traits. According to Mischel, the following assumption is shared by trait theorists:

"personality comprises broad underlying dispositions which pervasively influence the individual's behavior across many situations and lead to consistency in his behavior" (1973 cited in Stagner, 1977).

A continuing debate in the area of trait theory is whether traits actually exist within the individual, or whether the behavior of the individual is merely dependent on a given situation. In a recent book entitled The Person and the Situation, Ross and Nisbett (1991) reviewed available research and literature in an attempt to provide more evidence for the debate. They began by asking the question "Are people really the inveterate trait theorists we have claimed them to be?" (p. 120). When people are asked to describe themselves or each other, they rely heavily on trait vocabulary such as helpful, shy, outgoing, nice, aggressive, and so on. In fact, Park (1986, 1989 cited in Ross & Nisbett, 1991) found that trait descriptions were used twice as often as any other descriptor. In summary, Ross and Nisbett concluded that

> the evidence to date thus suggests that people automatically - and unconsciously - provide a dispositional interpretation to behavioral information. And it further suggests that the dispositions they favor are suspiciously similar to the trait constructs fabled in song, story, and personology texts. (p. 122)

Stagner (1977), having followed trait theory for years, also concluded that "the use of trait labels is deeply imbedded in popular psychology" (p. 203). He asserted that both scientific research and everyday language lend support for the continued use of the trait concept. "Our trait labels indicate that people in our culture have been able to perceive these differences and have found the vocabulary helpful to communication" (p. 203). Although the importance of situational factors must be acknowledged, the trait construct can not be ignored. Instead it should be used wherever applicable to assist in predicting, interpreting or explaining the behavior of individuals.

Jungian Personality Theory

The above elements are evident in the personality theory of Carl Jung, but they appear much richer in content and meaning when displayed within the larger context of Jungian analytical psychology, and are more detailed when examined in specific relation to the topic of personality typology. Before presenting Jung's theory of types, it is necessary to illuminate his broader conception of personality and his views on its structure and development within the individual.

According to Jung (1954),

> Personality is the supreme realization of the innate idiosyncrasy of a living being. It is an act of high courage flung in the face of life, the

> absolute affirmation of all that constitutes the individual, the most successful adaptation to the universal conditions of existence coupled with the greatest possible freedom for self-determination. (p. 171)

Embodied in this definition is Jung's primary concept of the total personality and his belief that from the original wholeness of an individual, various aspects of personality develop which allow the individual to achieve harmony with both one's self and the world.

In describing the structure of personality, Jung began with the psyche, which is the total of all the psychic processes, both conscious and unconscious. Psyche, originally meaning "spirit" or "soul" in latin, is the whole personality of an individual, including thoughts, feelings, and actions, and is powered by the libido or the whole of psychic energy (Jung, 1921/1971, p. 463). Although a detailed explanation of the many components of the psyche postulated by Jung is not necessary or possible in this presentation, it is imperative to note that it is comprised of three distinct, yet constantly interacting levels, the conscious, the personal unconscious, and the collective unconscious.

Consciousness is that part of the psyche that is known and available to the individual, and it is organized and regulated by what Jung termed the ego. The ego selects what

material (thoughts, feelings and ideas) will be made consciously available to the individual, and thereby provides the individual with a sense of identity and continuity. When the ego does not accept or select certain material, those thoughts remain in the personal unconscious; they are still part of the psyche, and are available to consciousness if needed, but they are not realized by the individual at the time. Jung distinguished the personal unconscious as "comprising all the acquisitions of personal life, everything forgotten, repressed, subliminally perceived, thought, felt" (1921/1971, p. 485).

The concepts of consciousness and personal unconscious were not new to psychological thought, but Jung's third level of the psyche was a definite innovation;

> in addition to these personal unconscious contents, there are other contents which do not originate in personal acquisitions but in the inherited possibility of psychic functioning in general, i.e., in the inherited structures of the brain. These are the mythological associations, the motifs and images that can spring up anew anytime anywhere, independently of historical tradition or migration. I call these contents the collective unconscious. (1921/1971, p. 485)

Jung felt that the collective unconscious performed a compensatory role, by balancing the contents of

consciousness. He identified a variety of archetypes or models contained in the collective unconscious, four of which are particularly relevant to an understanding of his theories of both personality and typology.

First, Jung identified the persona, that part of the personality which the individual exhibits to others, or as the Latin root suggests - the mask. If the persona is the outer personality, the anima/animus is one's inner personality, or the way one interacts with the inner psychic processes. According to Jung, the anima contains all the basic human qualities that an individual lacks in consciousness. A person's most basic, normal instincts or animal nature are present in the shadow archetype, which Jung maintained was potentially the most powerful, either positive or negative, archetype of man. In order to organize and bring into harmony the various components of personality, an individual must have the self archetype, the primary archetype of the collective unconscious which allows the individual a sense of integration, wholeness, and unity (Hall & Nordby, 1973, chap. 2).

With the existence of the self archetype, an individual's ultimate goal of attaining selfhood becomes a possibility. Jung asserted that wholeness of personality was possible only when the opposing parts of the psyche, the conscious and the unconscious, became "linked together in a living relation" (Jacobi, 1973, p. 105). (This concept of

opposing components of the personality is indicative of the recurring theme of opposites found throughout Jung's writing, becoming most central in his typology work.) Although Jung allowed for the possibility of a unified, complete personality, he doubted that the unconscious could ever be made fully conscious. "Personality, as the complete realization of our whole being, is an unattainable ideal. But unattainability is no argument against the ideal, for ideals are only signposts, never the goal" (Jung, 1954, p. 172). For Jung, the struggle toward the ideal was a lifelong developmental process which began even before birth. He believed that the child was not born a tabula rasa, having instead certain inborn qualities and characteristics which determined both development and behavior. Also influencing the progression of the psyche, however, were elements of the child's environment, for the individual must interact with others and with aspects of his immediate world that affect the development of the naturally inherited qualities (Evans, 1976, p. 152).

Just as the child was not born a tabula rasa, Jung posited that the inborn components of personality were not in different parts that needed to be put together. Rather, the child's psyche existed as a whole, from which the various aspects of the personality developed into separate entities through a process Jung termed individuation. Individuation seeks to reveal our initially hidden or

developing inner personality, and "insofar as "individuality" embraces our innermost, last, and incomparable uniqueness, it also implies becoming one's own self" (Jung cited in Ewen, 1988, p. 99).

Jungian Typology Theory

Throughout his life, Jung was fascinated by the uniqueness and "the enormous diversity of human individuals" (Jung, 1921/1971, p. 548) and their personalities. He claimed that this fascination led him on a lifelong search for "what the principle differences were", and "that is the book about the types" (Jung in Evans, 1976, p.95) or his theory of psychological types.

Jung was not the first to develop a typology system for classifying individuals. Such attempts have been made throughout the history of man in order to establish order within a seemingly random distribution of differences. As Jung himself writes, examples include the ancient oriental astrologers who identified four elements (air, water, earth and fire) and classified people accordingly, the physiological typing based on the four humours of the body (phlegmatic, sanguine, choleric and melancholic) and the classifications such as Kretchmer's based on physical body type (1933, p. 94,95). The typology Jung presented, however, was the first personality typology and the first based on individual psychic processes, so the initial

decision about what criteria to use for such a typology was solely Jung's.

Although Jung's theory becomes quite intricate, he attributes the personality differences in people to two basic processes: the characteristic direction of libido or psychic energy movement (the attitudes) and the way an individual apprehends both internal and external stimuli or information (the functions) (Jung, 1921/1971). After describing the attitudes and functions in more detail, this presentation will explain how typology relates to the development of personality, and make clear the purposes for which Jung developed his theory.

While noticing that there were certain individuals who were more active, and those who were characteristically more reflective or passive, Jung discovered that the psychic energy of individuals flowed both outward (toward the object) and inward (toward the subject); the former attitude he termed extraversion, the latter introversion. Attitude to Jung meant a "readiness of the psyche to act or react in a certain way" (1921/1971, p. 414). It is a predisposed orientation to something, whether conscious or unconscious. The extravert, with all his energy directed toward the object, thinks, feels and behaves in relation to the object, or in relation to his outside world. The introvert, in contrast, is oriented to the subject; "the psychic life of

this type is played out wholly within" (p. 551) and he feels most comfortable in his own world.

To say a person is an extravert or an introvert, however, is meaningless until the other characteristics that go with the type are understood (Jung, 1933, p. 98). The attitude of an individual must be indicative of his habitual or typical way of acting. According to Jung, "introversion or extraversion, as a typical attitude, means an essential bias which conditions the whole psychic process, establishes the habitual reactions, and thus determines not only the style of behaviour, but also the nature of subjective experience" (1933, p. 99). There is clearly an interdependence among an individual's type, his innate characteristics, and his behavior and experiences. All the psychic processes of an individual are influenced by the habitual attitude, which is determined by all the factors of a person's life (1921/1971, p. 416).

Although Jung's attitudes explained certain things about individual differences, they did not explain the different ways people obtained and dealt with information; for this purpose, Jung defined four psychic functions. Throughout his writings on psychological types, Jung maintained that his was not the only possible typology, and that his theory was a subjective one, based on his beliefs about psychic processes and his experiences with people. He

claimed to have merely created organized classifications based on those the general population already utilized. His explanation for the choice of his four functions was similar. Jung returned to "current ideas in daily speech, perfectly accessible and comprehensible to everyone", formed his "concepts of the psychic functions from the notions expressed in current speech", and used them as criteria in judging the differences between people of the same attitude-type (1933, p. 102).

Jung decided that from the variety of terms used to describe varying personality differences, he needed only four: two rational functions (thinking and feeling) and two irrational functions (sensation and intuition). He chose only these four and distinguished them from one another because they could not be "related or reduced to one another" (1921/1971, p. 437).

Consistent with his preference for everyday language Jung gave the following explanation of his four functions when asked to give their meaning:

> Namely, sensation tells you that there is something. Thinking, roughly speaking, tells you what it is. Feeling tells you whether it is agreeable or not, to be accepted or not, accepted or rejected. And intuition - there is a difficulty because you don't know ordinarily how intuition works. When a man has a hunch, you

> can't tell exactly how he got that hunch, or where that hunch came from. It is something funny about intuition. (Evans, 1976, p. 99)

Jung considered the four functions to be a means of orientation to our immediate world, claiming they worked much like the four points of a compass. Nothing prevents us from shifting a few degrees in any direction, or from giving the directions different names, but the overall structure, or the compass, is an invaluable tool (Jung, 1933, p. 108).

Identification of the four functions was important to Jung, yet the differentiation of the functions from each other was the key to personality development. Obviously man can not be everything at once, and therefore must develop some functions at the expense of others (Jung, 1933, p. 106). Jung asserted that each individual was predisposed by nature to prefer one of the four functions, and through frequent usage, that function became strengthened and further developed or differentiated. Clearly, the most relied upon function, the dominant function in Jung's terminology, influences the individual's experiences with the world, which then reinforce the use of that function, until the individual habitually approaches life in relation to the dominant function. "The individual uses his leading or dominant function not merely as a means of experiencing the world, but as the basis around which he organizes his personality" (Progoff, 1953, p. 102).

What happens to those functions that are not as developed? Jung believed that they retreated to, or remained at, levels of lesser consciousness, but still exerted considerable influence over personality by acting as compensatory opposites to the dominant function. The most inferior function, according to Jung, was that directly opposite the dominant (i.e. dominant feeling with inferior thinking), while the two remaining functions were more prominent and able to exert a considerable influence on consciousness. The most developed of the three nondominant functions was termed the auxiliary function, and was always rational (feeling or thinking) if the dominant was irrational (sensation or intuition) and vice versa. Although Jung recognized the lesser functions, he stated that

> the very conditions of society force a man to apply himself first and foremost to the differentiation of that function with which he is most gifted by nature, or which provides his most effective means for social success. Very frequently, indeed as a general rule, a man identifies himself more or less completely with the most favored, hence the most developed, function. It is this circumstance which gives rise to psychological types. (Jung, 1921/1971, p. 450)

Having identified and defined his two attitudes (extraversion and introversion) and four functions (sensation, thinking, feeling and intuition), Jung made possible a classification system with eight "types". The functions combined in four combinations, which then varied dependent upon the prevailing attitude. Classification, however, was not Jung's intention; "it is not the purpose of a psychological typology to classify human beings into categories - this in itself would be pretty pointless" (Jung, 1921/1971, p. 554).

Rather, Jung's typology was designed as a "system of comparison and orientation" (Jung, 1933, p. 108) that could be used to begin to make some sense of the vast array of individual personality differences. For Jung's typology it is not important to remember all the names of the functions, or to memorize lists of surface qualities inherent in the types, because it is not a surface system of classification. It is based on libido movement, and the psychological function to which this movement is attached, both in the conscious and the unconscious. The types are points of reference, or a framework, through which understanding of the underlying processes is possible. Typology "is a means to an end" (Evans, 1976, p. 108).

Type theory and its general purpose are best explained by Jung himself in the following words:

> My whole scheme of typology is merely a sort of orientation. There is such a factor as introversion; there is such a factor as extraversion. The classification of human individuals means nothing at all. It is only the instrumentality, for what I call "practical psychology," used to explain, for instance, the husband to a wife, or vice versa...it only makes sense as a scheme when you deal with practical cases. (Evans, 1976, p. 97,108)

The Myers-Briggs Type Indicator

Practical use of Jung's typology became possible when his theory was operationalized in the form of the Myers-Briggs Type Indicator. Jung did not take his ideas of psychological type beyond the theoretical realm, but Katherine Briggs and her daughter Isabel Briggs Myers were to prove that the implications of type theory "are translatable into more familiar concepts and methods of psychological inquiry" (Carlson, 1980, p. 809). In 1942, after years of informal "type watching" and observing people's behavior, Isabel Myers began constructing an instrument that would allow Jung's theory to become "understandable and useful in people's lives" (Myers & McCaulley, 1985, p. 1); the Myers-Briggs Type Indicator (MBTI) was first published in 1962 for research purposes, and for widespread use in 1975.

The MBTI is a paper and pencil measure of people's self-reported preferences for Jung's two attitudes and four perceiving/judging functions, as they were understood by Myers. Myers also added a judging/perceiving (JP) scale which she felt was implicit in Jung's theory, and allowed the identification of an individual's dominant or most preferred and auxiliary function. The MBTI contains four bipolar scales as follows:

> **Extraversion or introversion** - whether perception and judgement is directed to the outer (E) or inner (I) world.
>
> **Sensing or intuition** - which kind of perception is preferred.
>
> **Thinking or feeling** - which kind of judgement is trusted when a decision needs to be made.
>
> **Judgement or perception** - whether to deal with the world in the judging attitude, using thinking or feeling, or in the perceptive attitude, using sensing or intuition.

Items consist of paired statements reflecting preferences relating to each scale and yield numerical scores on each of the eight poles. The scores are used to identify the dominant preferences a person has for each of the four types and result in a four-letter code. Each of the 16 possible types is considered to have unique behavioral patterns, with special gifts and strengths, areas of vulnerability, and pathways for development. (Goodyear, 1989, p. 435)

The following are general descriptions of the 16 type preference combinations as they apply to the personalities

of children. They have been compiled and adapted from descriptions of the types in texts by Keirsey and Bates, 1978; Lawrence, 1979; and Myers, 1980. As well, information was taken from the MMTIC manual (Meisgeier & Murphy, 1987b), and two supplementary booklets: Introduction to Type (Myers, 1989) and Growing with Type (Roemer, 1989/1990).

ISTJ: Introverted, sensing, thinking and judging children tend to be quiet and serious, often keeping their thoughts and feelings to themselves. They gather information about the world around them from the five senses, paying close attention to details and facts. They appreciate real life examples and need specific instructions when completing tasks. ISTJ students make decisions based on what is logical, and strive to know "why" things are the way they are. They function best when they know what is going to happen in their lives; they respond well to routine or structure and can concentrate well even when faced with minor distractions. Their dominant or favorite function is sensing, which they use most in their inner world.

ISFJ: Introverted, sensing, feeling and judging children also prefer to spend time alone or with one or two close friends to enjoy their own thoughts and have time to think about things. They too rely heavily on information gained from things they can see and touch. ISFJ students are responsible and conscientious; they pay careful attention to all details, sometimes at the expense of

"missing the big picture". Children with this type combination are concerned with how others feel. They are uncomfortable with yelling or fighting, and try to create harmony wherever they are. ISFJs also appreciate an organized or traditional classroom arrangement and it is important to them that they finish assignments on time. Sensing is the most preferred function for the ISFJ child.

INFJ: Introverted, intuitive, feeling and judging children are quietly forceful and independent, yet they value people and friendships. They gain information from their world through intuitive "hunches" or a "sixth sense". Students of this type enjoy make-believe and fantasy stories, are original, imaginative and eager to learn new skills. INFJ students appreciate personal comments from teachers and parents, and respond well to praise. They plan their assignments ahead, and prefer to work on only one or two projects at a time. Intuition is the most developed preference of this type, and is again used most in the inner world of possibilities.

INTJ: Introverted, intuitive, thinking and judging children have their own original ideas and work hard at being the best. They are persistent and independent, sometimes to the point of being stubborn. They enjoy working alone on projects and often trust their own judgement and do things in creative and different ways. In their attempts to be original and carry their ideas through,

INTJ students may catch the main idea, but fail to see all the facts. These children make decisions based on logic, and are careful to know and follow established rules. Thinking is the primary function for the INTJ type, and if used exclusively, may lead these children to neglect their own feelings and those of others close to them.

ISTP: Introverted, sensing, thinking and perceiving children tend to be quite shy, except with their best friends. They are often good with their hands, and like outdoor activities and sports that enable them to use their senses to gain information about the world. ISTP students are curious, and may get so absorbed in what they are doing that they lose track of what is going on around them. These students enjoy solving problems using logic and analysis, and like to know "why" things are being done and what is expected of them. At times these children avoid making decisions or fail to follow through with tasks they have begun. They enjoy a spontaneous approach to life and adapt well to change. Thinking is the preferred function for ISTP children, and is used most in their inner world.

ISFP: Introverted, sensing, feeling and perceiving children are sensitive, kind and quietly friendly toward others. They are warm, caring children, but as Myers (1987) states, "they keep their warm side inside, like a fur-lined coat" (p. 16). ISFP children take a very personal approach to life; their values and opinions, as well as those of

others, are extremely important. They tend to be loyal followers rather than group leaders, and contribute well to group harmony. As students, these types need personal feedback from teachers and try hard to make others proud. They like to stay open to possibilities in life and enjoy surprises. ISFP students like to have fun while learning, and appreciate the freedom to move around and explore. Feeling is the dominant function for ISFPs, and while it gives them a very personal approach to life, it may lead them to be overly sensitive and vulnerable at times.

INFP: Introverted, intuitive, feeling and perceiving children are also warm and sensitive, but they tend to keep their thoughts and feelings to themselves until they know a person well. They need time alone to think about things, process their ideas and regain the energy needed to deal with their external world. INFP students focus on the global picture, seeing what could be and looking to future possibilities. They need to know why they are doing something, and work best when they believe in their projects. They often take on too many projects, but somehow manage to get them all done. INFPs need teachers and parents to be flexible. Their most preferred function is feeling, and if they are not able to pursue their ideals they may become disenchanted and lose confidence in themselves and in life.

INTP: Introverted, intuitive, thinking and perceiving children tend to enjoy a small circle of friends, and often become so absorbed in what they are doing or thinking that they tend to forget about those around them. Their main interest is in what is possible for the future. These students are often good at science and math, and solve problems logically. INTPs are quick to understand, although this may not be apparent as they may do assignments only at the last minute. Thinking is the favorite preference of these types who may at times let their strong tendency for thinking hold them back from expressing their feelings.

ESTP: Extraverted, sensing, thinking and perceiving children like lots of friends and enjoy variety in life and at school. They are easy going and good at on-the-spot problem solving. These children rely on what they can see, hear and touch and appreciate real life examples. As students, ESTPs learn better from first hand experience than from studying or reading. According to Myers (1987), ESTPs "may have to work harder than other types to achieve in school, but can do so when they see the relevance" (p. 18). Thinking is the dominant function for these children, yet they are full of fun and appear to truly enjoy life.

ESFP: Extraverted, sensing, feeling and perceiving children are friendly, and often curious about the people, things and events around them. They gain information primarily through their five senses, and use or adapt this

information to actively solve problems. These students like subjects that focus on people, and enjoy working with others. They are open-minded, tolerant and generally "take life as it comes". Sensing is the function most preferred by ESFPs, which is reflected by their practicality and common sense.

ENFP: Extraverted, intuitive, feeling and perceiving children are often enthusiastic, imaginative and full of fun. They are impulsive at times, and are willing to jump in to help others any time. As students, ENFPs may have difficulty following an assignment through to completion, but they always have innovative ideas and creative ways of doing things. ENFP children appreciate personal notes on their papers from the teacher, and respond well to praise. They enjoy open-ended assignments and work best when they have the freedom to work on what they wnat, when they want. Intuition is the preferred function of these children, which finds them always being drawn toward the future and the possibilities therein.

ENTP: Extraverted, intuitive, thinking and perceiving children are quick to make friends, show their feelings freely, and are generally outspoken and fun to be with. They are imaginative and good at make-believe, as well as innovative and resourceful when it comes to solving difficult problems. These students enjoy learning new tasks, and try hard to be the best at whatever they do.

ENTPs are curious explorers who enjoy surprises and having fun. Intuition is the dominant function of these children, and keeps them always open to new ideas and approaches to life.

ESTJ: Extraverted, sensing, thinking and judging children notice everything that is happening around them and tend to live in the "here-and-now". The want exact directions, and are driven by logic and rules. These students like to practise familiar skills and then put them to practical use. ESTJs are good organizers or leaders and enjoy running activities. Because they rely heavily on logic and thinking, their primary function, they may tend to overlook their own feelings and those of others.

ESFJ: Extraverted, sensing, feeling and judging children are often sympathetic, caring, talkative and popular members of a group. They are good at creating harmony whever they are and enjoy working with others. These types tend to rely on information recieved through their senses, and use this information practically. ESFJs think and respond best when working with people rather than things. As students, they also like subjects that focus on people, and appreciate knowing the classroom routine and any potential changes ahead of time. Feeling is the most preferred function for ESFJs, which leads them to respond well to both praise and criticism.

ENFJ: Extraverted, intuitive, feeling and judging children are friendly, responsible and caring. They are sociable, talkative and generally well liked by others. These children see the best in others, and are always willing to help. As students, they are open to possibilities and enjoy working on new tasks. They too avoid conflict between people, and strive to create harmony among their friends. ENFJ students like a traditional classroom arrangement, and work best if they know the plan of the day. Dominant feeling allows these children to base decisions primarily on their own values and those of others close to them.

ENTJ: Extraverted, intuitive, thinking and judging children are outgoing, straightforward and enjoy learning new information. They are eager to see the possibilities in any task and work hard to get things done. ENTJ students appreciate knowing what is right and wrong, and what is expected of them. These children enjoy making decisions based on logic, and are apt to plan ahead to make sure things get done on schedule. Thinking is the dominant preference for these types, and may at times hinder them from taking their feeling values into account.

Reliability and Validity Evidence

Since 1975, the Myers-Briggs Indicator has been widely used in various contexts, including counselling, vocational, clinical and educational settings (Carlson, 1989; McCaulley, 1981; Thompson & Borello, 1986). Before elucidating the education research pertaining directly to the use of type theory with children, it is imperative to establish that the MBTI is worthy of practical use; a brief synthesis of existing reliability and validity evidence is necessary.

Despite the abundance of research articles related to the MBTI, there do not exist many reliability reports based on comprehensive, methodologically sound studies. Carlyn, in her assessment of the MBTI, reviewed the reliability evidence to 1977, although comparison of various results was difficult due to the use of both dichotomous type categories and continuous type scores, as well as the fact that varying statistical procedures and forms of the MBTI are used. She reported that "estimated reliabilities of type categories appear satisfactory"(p. 465), that internal consistency reliability coefficients ranged from .69 to .87, and that test-retest data supported the stability of the MBTI scales separately and when combined to produce a four-letter type.

In more recent reviews, Carlson (1985 & 1989) affirms the findings of Carlyn (1977), and adds evidence in favor of the MBTI's reliability. He reports satisfactory internal and test-retest reliability for forms F and G of the MBTI,

with "r values of individual scales often exceeding .80" (1985, p. 363). Although stability studies are fewest in number, an example of an innovative method of inquiry reported by Carlson (1989) involved a test-retest situation that demonstrated MBTI stability over a five week period despite the effects of artificially induced changes in mood.

Researchers (Carlson, 1989; Carlyn, 1977; McCaulley, 1981) agree that although reliability results thus far appear favorable, more studies are needed, specifically studies that assess test-retest reliability over longer intervals, and that involve more diverse test conditions and populations. The authors of one of the most recent articles discussing test stability assert that what is really needed in the area is a summary of reliability "from a purely practical point of view" which would address the question "How many times out of a hundred would a skilled practitioner make essentially the same judgement?" (Schuerger, Zarrella & Hotz, 1989, p. 782).

The question "Does the MBTI assess what it was designed to assess?" is more difficult to answer, and refers to the indicator's validity; does it really measure Jungian typology? Recent inquiry has focused primarily on construct validity, which according to McCaulley (1981) is the most "relevant in establishing the validity of the MBTI since the Indicator was constructed specifically to implement a theory" (p. 319). Thompson & Borrello (1986) reveal

consistent supportive construct validity evidence which adds to the positive review given by Carlson (1989). In various item analyses, Sipps & Alexander (1987), Sipps & DiCaudo (1988) and Sipps, Alexander & Friedt (1985) have found supportive convergent and discriminative validity evidence, but have also noted that the EI and JP scales of the MBTI may be measures of sociability and impulsivity, respectively, rather than of what they claim to measure. Validity results are not conclusive, and additional research in this area is also needed; the primary concern in the field is that many of the studies are being performed by a small number of the same researchers, which may limit the generalizability of their findings.

While reliability and validity are empirically important to the usability of a test, Carlson (1989) mentions the concept of test credibility, and asserts that test credibility for both the MBTI user and taker is heightened if the psychological reality of the MBTI dimensions are apparent to the test taker. By "psychological reality", Carlson means that when an interpretation is given to the test taker, that individual realizes the parallels "between the descriptions of the individual from the test and the individual's own self-perceptions" (1989, p. 484). Having administered the MBTI to several clients recently, I have seen evidence of this psychological reality in adults who say "Yes, that's exactly

what I'm like." I do not find this particularly surprising, however, or particularly noteworthy, as the MBTI is a self-report inventory, and should report only the information that was received from the test taker; that it reports the information in such an understandable manner is of importance though.

The Murpy-Meisgeier Type Indicator For Children

The Murphy-Meisgeier Type Indicator For Children (Meisgeier & Murphy, 1987a) was "designed to elicit information about individual differences in children through the identification of psychological type" (p. 1). The MMTIC appears to be a children's version of the MBTI, intended for use with children in grades two through eight; it is "built on the same foundation and developed within the same conceptual framework as the MBTI" (p. 2). The MMTIC also identifies 16 type combinations based on the four bipolar preference scales, but each scale also has a middle range which is used if it is not possible to determine a child's preference on that scale. The middle range is termed the "Undetermined" or "U"-band, and is represented in the four letter type code by the letter "U". For example, if an introverted, feeling and perceiving child's preference on the sensing-intuition scale was not clear enough to report either S or N, the four letter type would read IUFP.

A U-band or undetermined score should not be considered negatively. It merely means that the child's preference on

that scale was not indicated clearly enough to allow reporting it as either of the bipolar preferences. According to Meisgeier and Murphy (1987b), "this does not necessarily mean that a child's preferences are undifferentiated in a psychological sense, only that the measurement of these preferences could not be accomplished at a satisfactory level of precision" (p. 9).

Preference scores on the MMTIC (the numerical scores which determine whether a child will be placed at either bipolar type preference or in the U-band) are meant to "indicate direction of preference only" (Meisgeier & Murphy, 1987b, p.9). The actual numerical score says nothing about the level of development of a child's type preference.

Type preference scores are "computed using item weights derived from a discriminant analysis procedure" (Meisgeier & Murphy, 1987b, p.9) which is outlined and explained in Chapter 5 of the MMTIC manual. After the preference scores were computed, a midpoint was calculated for each scale, around which the undetermined or U-band was built. The manual reports that the procedure used to determine a child's type preferences is a conservative one, and that much additional research is required to "test the appropriateness of these classifications and to establish the midpoint" (p.23).

The concept of the midpoint and surrounding U-band is consistent with the idea that type is only developing in

children, a factor which also indicates that in children perhaps only a dominant function may be identified, as the auxiliary function may not yet be formed. Once a child's type preferences on each bipolar scale have been determined, it is possible to identify the dominant (or in children, the "developing" dominant) function. (Please see Table 3 on page 7 in the MMTIC manual for a list of developing dominant functions for each four letter type.) However, one outcome of having an undetermined band for each scale is that it is not always possible to identify a child's dominant function. If either the EI or the JP preference is reported as a "U", or if the theoretically dominant function is a "U", the authors (Meisgeier & Murphy) suggest considering all possibilities, and not forcing a child into any particular type or preferred dominant function.

As the MMTIC is a relatively new instrument, reliability and validity evidence is yet to be published, other than the original data available in the 1987 manual. Murphy and Meisgeier (1987b) report internal consistency and test-retest reliability coefficients ranging from .58 to .79 depending on the study and the subpopulation; these scores are lower than those published recently for the MBTI, but this is to be expected, as type is still developing in children, and "the reliability of a scale cannot be greater than the consistency of the underlying construct in the individuals" (p. 26). Validity data reported in the MMTIC

manual follows the same format as that reported for the MBTI. The MMTIC was correlated with the Children's Personality Questionnaire, the Learning Preference Inventory and the Learning Pattern Assessment, and "in general, the pattern of these data is comparable to the research that has been reported for the MBTI" (Myers & McCaulley, 1985 in Meisgeier & Murphy, 1987b, p. 31). Before the psychometric properties of the MMTIC can be adequately established, however, much additional research is necessary.

Rationale For Using MBTI Research To Investigate Type In Children

Despite the fact that there exists almost no published research or literature on the MMTIC, it is being increasingly used with children in both educational and counselling settings. Based on the available data, the MMTIC should probably have been deemed a research instrument, but instead it is in widespread use as an established type indicator. Because it is based directly on the MBTI, it seems plausible that an investigation of current MBTI research, if interpreted carefully, could be extrapolated from to determine if any of the findings can be related to type in children and education. Before discerning whether and how MBTI research data relates to the MMTIC, it is important to discuss the efficacy of using psychological types with children; the fact that the MMTIC

was created and thus there exists a tool for typing children is not reason enough.

Theoretical Support For Use Of Types With Children

"Psychological type theory deals with fundamental mental processes from birth to death" (Dilley, 1987, p. 44). Jung (1921/1971) believed that development of type preferences is a lifelong goal that begins at birth; children are born with predispositions to prefer certain functions over others, making the activities of those functions more interesting and rewarding, which leads to the preferences becoming even stronger.

> Murphy and Meisgeier (1987b) assert that, although any attempt to associate type development with particular ages should be done with extreme caution due to lack of research in this area, there seems to be a consensus that the elementary and beginning middle school years are important and formative in the development of healthy type, self-esteem, and the effective utilization of the dominant function in learning and growth tasks. (p. 7)

Bayne (1988) concurs with the above statement, yet he offers the ages of birth to ten years as the time that the initially undifferentiated functions begin to emerge, as does the existence of a dominant function, after which the auxiliary function begins to appear. Jung also noted that

"people exhibit a preference from approximately age 6 on in their dealing with life" (Evans, Benner & Hayes, 1985, p. 3). Jung, who pioneered the concept of psychological type, clearly made reference to its existence, development, and importance within children (Jung, 1921/1971, p. 332, 516, 517). Implicit in his theory also is the idea that type in children is concerned primarily with extraversion and introversion, and with the development not only of type in general, but of the dominant function (Bayne, 1988).

MBTI Research Related To Education

From the diverse and vast amounts of MBTI research, those studies which reflect the most recent findings related to education will be discussed here. It is important to note that researchers approach the study of psychological type in different ways; some choose to study and compare types based on the four letter combinations provided by the MBTI, while others isolate and study one attitude or function at a time, and still others combine two or three functions. According to Carlson and Levy (1973), type patterns chosen for a given research purpose should be chosen by "examining the components which are theoretically important in the immediate context" (p. 574), and "predictions should be based upon those components of the total type pattern which are intrinsically relevant to the problem at hand" (p. 563).

The focus for arranging current research is based on various aspects related to elementary education. After discussing the importance of the unique differences of children, this presentation will turn to student learning style and ability, teaching style, possible teacher influence on type, and finally to the classroom environment and classroom behavior. For the purpose of this paper, it is not pertinent to review the various interpretations that have been made relating the characteristics of different types and type combinations to education and learning style in particular, as such presentations are readily available elsewhere in comprehensive form (see Keirsey & Bates, 1978 and Lawrence, 1980 for example). Rather, more recent, specific, research results will be linked to the educational areas in question.

Children's Unique Gifts

Earlier it was established that using types in relation to children is relevant according to Jung, and now also possible with the introduction of the MMTIC. Using type specifically in elementary education, however, is based on the assumptions that any additional information about the unique differences and abilities of children can be used to their advantage in the classroom, by aiding teachers, friends, and the children themselves toward an increased understanding of these differences and their implications for everyday life. Murphy and Meisgeier (1987b) add that

teachers should be "flexible in applying type concepts in the classroom" (p. 13), and remember that measurement of type during the early years especially, "should be considered tentative and suggestive" (p. 13) only.

Although the evidence surrounding the MMTIC, and perhaps the MBTI as well, is less than definitive, Carlson (1989) asserts that "a kind of Type II error" (p. 489) is possible if counsellors, or in this case educators, hesitate to use the instrument until conclusive results are available. By hesitating to administer and use the MMTIC, educators may be missing a valuable tool in helping them better understand and teach children. Clearly, the MMTIC is being used, and educators must be aware of its existence and of the implications of its use.

Student Learning Style and Ability

Overall achievement is perhaps the most noticeable characteristic of elementary students' style or ability, and according to Carlson (1979), "accumulating evidence suggests that a very broad range of cognitive styles and skills may be understood in terms of typological patterns" (p. 801). Theoretical expectations reported in the MBTI manual suggest that introversion and intuition are the attitude and function most linked to aptitude and ability, as they offer an individual those preferences with the highest match to academic tasks, such as relating to concepts and ideas (introversion), and the ability to work well with

"abstraction, symbols, and theory" (Myers & McCaulley, 1985, p. 96) (intuition).

Because the MBTI is designed for use with individuals above grade seven, the expectations may not be the same for elementary aged students. Primarily because much of the elementary curriculum, at least in the early years, is designed at a much more concrete level, it follows that the more fact based sensing type individuals may gain the most from the way information is presented in the classroom, and the extraverted individuals would feel most comfortable with the more social based environment at the elementary level. Jacobi (1973) also asserted that a born extravert has a definite advantage during childhood years, because the extraverted attitude is more conducive to adapting to the environment, which is one of the primary tasks of early life.

Evans, Benner and Hayes (1985) add that "sensing students are more likely to respond positively to the repetitious detail often found in elementary schools, while intuitive students may become bored with the process" (p. 13). They also report that approximately 75% of the population prefers the sensing function, so those preferring intuition would also be in the minority in the classroom, both from a student and teacher perspective; they would be interacting with individuals who were largely different from themselves in relation to how they perceive information.

The judging and perceiving scales are often those associated with under and over achievement; despite the fact that perceptive types generally perform better than judging types on tests such as scholastic aptitude and abstract reasoning, judging types appear to achieve higher grades (Carlyn, 1977; Willis, 1984). Overachievement by judging individuals may be due to their planned approach to life and adherence to study schedules and homework expectations, while the underachievement of perceiving students can be credited to their tendency to play before working, and to procrastinate where school assignments are concerned.

Much of the more recent literature on the MBTI focuses on ways of perceiving information, which can be directly related to presentation of material in the elementary classroom. One example of this research is a study reported by Carlson (1989) about the time spent "evaluating incoming stimuli" (p. 485). Ware, Wilson, and Yokomoto (1986) tested a variety of thinking and feeling individuals, and found that thinking types spent significantly longer looking at photos presented to them than did feeling types. From this they assert that thinking individuals spend more time "weighing" the facts, while feeling individuals "rely more on their sheer likes and dislikes" (p. 485). This finding has implications for the elementary classroom, in that teachers should be aware of differences such as these when presenting visual information to students, and expecting

them to first perceive, and then process it. Students with different types, for example, may need different amounts of time to perceive information, and should also be expected to arrive at different conclusions based on the information, simply because of what aspects of the stimuli are more important to them.

Teaching Style, Learning Style and Classroom Environment

Knowledge of type is valuable not only in relation to specific modes of perceiving and judging information as outlined above, but also in a broader sense, as it relates to teacher/student rapport and the overall class environment. A 1989 study by Boersma, Kienholz and Jevne reports that the majority of elementary school students tend to be extraverted, sensing and feeling types, or ESF. This is consistent with previous reports in the field, and with data reported in the MMTIC manual. They also found that teachers prefer to teach using sensing and feeling preferences; this would create a positive teaching/ learning style match for the majority of students in the classroom. For example, an S type teacher may write information on the board as well as saying it out loud, which would aid the sensing student who "learns better because two senses are involved in the learning process". As well, both feeling students and teachers "value interpersonal interactions and the effects of affect,

approval, and acceptance upon the educational process" (Evans, Benner & Hayes, 1985, p. 13).

Keirsey and Bates (1978) assert that the added dimension of judging, especially when associated with sensing (SJ), is also dominant at the elementary level for both students and teachers; "school is made for SJs and largely run by SJs" (p. 40). SJ types want to find out what they are "s'posed to do" (p. 40), and then strive to accomplish that. This idea of conformity is supported by Carlson (1985) who reports the results of a complex study which found that EF and ES types conformed much more easily than IN types. Although this study was conducted in relation to judging line length (paralleling the Asch studies), conformity in the classroom even at young ages is often an issue, especially in relation to discipline and behavior problems. Another example of an SJ characteristic exemplified in the classroom is the desire to have a traditional classroom setup and traditional seating arrangements. The judgement-perceiving dimension of the MMTIC, according to Carlson (1989), is extremely important in relationships, which would relate it to the question of teacher/student rapport. Carlson reports that "differences on the judging-perceiving dimension were correlated with the greatest number of reported problems" (p. 485). This discrepancy is likely related to the major difference between the two type preferences; J types prefer a planned

approach to life, while P types appreciate spontaneity and less rigid structure. It is easy to understand how differences such as these would be very evident in a classroom situation.

In elementary school classrooms, teachers maintain much authority, and are often "looked up to" by their students; this raises the question "What happens when the predispositions of the student are pitted against the "treatment" of a curriculum or teacher?" (Hart, 1982, p. 801). In other words, what happens to those students whose types do not match with that of the teacher? Although the answer to that question has not yet been determined, there is speculation that pressure from teachers and the classroom environment (Barrett, 1989) can lead to false type development (Bayne, 1988; Dilley, 1987) in children. False type is characterized in children who develop and act in nonpreferred ways; perhaps an introverted child in the midst of a class of extraverts will be pressured to "become part of the group" and to socialize more etc..

How are children to know what their preferred type is, or should they even be concerned with the concept of type? This issue is not adequately examined in the literature, but from examination of the MMTIC itself, it seems possible that children would benefit from some explanation related to the personality differences of people. Perhaps one method for implementing such a procedure, particularly in the early

elementary grades, would be to match characteristics of certain types to various animals, or cartoon characters to which the children could more easily relate. Recently, a booklet that explains type preferences to children using cartoon figures and humor has been published for students, teachers and parents (Roemer, 1989/90).

Limitations Of Abstracting From MBTI Data And Research

As demonstrated above, MBTI research findings can be examined and tentatively applied to the use of type and the MMTIC with elementary school children, but such practise is not without limitations. The largest and most immediately relevant difference is one of age. Not only is the MBTI designed for use with individuals from grade seven and above, most of the research has been conducted with college age populations; the underlying assumptions drawn from the studies may be applicable to younger individuals, but any parallels drawn remain inferential and inconclusive. Even within the MBTI research, results are inconclusive, often contradictory, and at times based on less than ideal research methodology. One example of the difficulties inherent in typological research involves using type preferences designed to describe individuals for group descriptive purposes. Levy and Ridley (1987) warn against reporting and relying on results gained from modal personality descriptions (i.e. "most elementary students are

ESF types"), because they often fail to accurately characterize the group members.

Just as many studies fail to preserve the individual aspect of psychological type theory, they also fail to conduct quantitative studies with sufficient sample sizes. Johnson (1980), to provide an extreme example, published an article utilizing the MBTI in relation to personality type change, with a sample size of three. Subpopulation specificity is also a difficulty within MBTI research, as undergraduate psychology students are often the "voluntary" research subjects; research based on such samples is limited in its generalizability.

Despite its limitations, MBTI research can help us see possibilities for future applications of type in relation to children and elementary education, and directions for future MMTIC research. However, placing any additional confidence in abstracting from existing MBTI evidence would be, at the very least, misleading. Although the MMTIC is based on the same principles and theory as the MBTI, and reveals type results in the same format, it is <u>not</u> the same as the MBTI, and as much as it would seem plausible to "borrow" MBTI research results, no definitive conclusions can be offered. Ideally, a comprehensive review of MMTIC related research and studies dealing with elementary aged children would be necessary to determine the extent of existing knowledge on the topic, and to identify those areas worthy of further

investigation. Realistically, only three articles, in addition to the MMTIC manual, directly pertaining to the MMTIC have been published.

MMTIC Research

A 1989 study, mentioned earlier, by Boersma, Kienholz and Jevne explored a format for teaching type theory to elementary education student teachers, while another MMTIC study (Fourqurean, Meisgeier and Swank, 1988) considered psychological type in children more specifically. The study examined the relationship between MMTIC type preferences and academic achievement, as measured by the Iowa Test of Basic Skills, for fourth and fifth grade students. The researchers found that only the sensing - intuition scale of the MMTIC was related to academic functioning. Consistent with prior MBTI results, students with a preference for intuition tended to have higher achievement results, specifically on the reading subtests, supporting the notion that type relates to academic achievement similarly for adults and children.

Fourqurean, Meisgeier and Swank (1990) conducted a second study which investigated the relationship between learning style and psychological type in ninth grade students. Learning style was measured by the Dunn Learning Style Inventory and the Renzulli-Smith Learning Style Inventory, while the MMTIC was the psychological type measure. Results suggested that the extraversion-

introversion MMTIC scale was linked to a bipolar learning preference dimension which could be termed active-passive. The students preferring extraversion tended to also prefer learning by working with others and being "actively engaged in the learning process" (p. 235). A second finding linked the judging-perceiving MMTIC scale to a "structure motivated dimension contrasted with a need for an unstructured, casual learning style" (p. 235). Although this study appeared to support a conceptual link between learning style and psychological type, it did not conclude that they necessarily both measure the same construct. These results are probably generalizable to younger students, but it must be noted that this study was conducted with grade nine students who are far past elementary school and who are also outside the age and grade range for which the MMTIC is intended. While informative and thought provoking, these studies only begin to investigate the relationship of personality variables such as psychological type to school functioning.

Purpose of the Present Study

The present investigation is an exploratory study designed to further research the relationship of personality type to classroom performance. Specifically, the purpose of this study is to find out whether elementary school children experiencing learning difficulties in the regular classroom exhibit unique psychological type characteristics or

preferences in comparison to those students not experiencing difficulties. In addition, this study will explore the nature or pattern of these personality characteristics and their potential educational implications. Three sample groups are used in this study; children referred to the University of Alberta Education Clinic for learning difficulties at school comprise the first sample, while the second group is the normative MMTIC sample, and the third group consists of students from regular classes in two Fort Saskatchewan Catholic schools. All three samples are described in chapters three and four.

Research Questions

1. How do the clinic sample, the MMTIC normative sample and the regular class sample compare regarding the percentages of clear versus undetermined type preferences?

2. How do the three samples compare in relation to the percentage distributions of each bipolar preference scale, including U-band cases?

3. What, if any, are the psychological type differences, as measured by the MMTIC, between the clinic referred elementary students experiencing learning difficulties and those students who comprised the normative MMTIC sample?

4. What, if any, are the psychological type differences between the clinic referred students

experiencing learning difficulties and students from a regular classroom?

5. What, if any, are the psychological type differences between the regular class students and those in the normative MMTIC sample?

6. What is the nature of the psychological type preference differences between the above sample groups?

7. What are the potential educational implications of such psychological type preference differences?

III. METHOD

Subjects

Subjects for this study came from three sample groups, which are separately described, in detail, in Chapter 4. The first sample consisted of 84 students (58 male, 26 female) referred by their parents or school to The University of Alberta Education Clinic for psychoeducational assessment because they were having difficulty learning in a regular school classroom. Although the children in this sample appeared to have average or above learning potential (M IQ = 104.0, SD = 11.0), learning difficulties were reported in the areas of reading, spelling, language arts and arithmetic.

A comparison sample was the American normative sample group of 1499 students (820 male, 679 female). This sample is described further in the MMTIC Manual (Meisgeier & Murphy, 1987b, p. 20, Table 5). A second comparison group was a regular classroom sample of 185 students (93 male, 92 female) obtained from two Fort Saskatchewan Catholic elementary schools.

Instruments

The instrument used to identify the psychological type preferences of students in this study was the Murphy-Meisgeier Type Indicator For Children (MMTIC) (Mesigeier & Murphy, 1987a) which reflects the ways children focus their attention, how they gather information, make decisions, and

approach life in general. As mentioned earlier, the MMTIC is designed for children (grades 2 through 8) and follows the same pencil and paper format as the Myers-Briggs Type Indicator. It is a 70 item indicator which asks the child to choose his or her preferred response from two choices, neither of which is right or wrong. The MMTIC takes approximately 30 minutes to complete, and when scored yields results about type preferences for the same four bipolar scales as the MBTI: Extraversion - Introversion, Sensing - Intuition, Thinking - Feeling, and Judgement - Perception. Each of the four scales on the MMTIC also has a middle U (or undetermined) band which includes scores indicating that a child's type preference for that scale is still developing and is as yet undetermined. For a more detailed description of the MMTIC and the U-band concept, please see Chapter 2.

Procedure

Although all subjects completed the MMTIC, the procedure for data collection was different for each sample group. Subjects in the learning difficulties sample were selected from those students referred to the University of Alberta Education Clinic for psychological assessment between the fall of 1989 and summer 1990. Students are referred each year for a variety of reasons, including readiness testing, behavioral or emotional problems, giftedness testing, parental or school interest, and learning difficulties. The students selected for this

sample were all referred because they were not succeeding academically in regular classrooms. Their performance in reading, spelling, language arts or arithmetic was at least one or two grade levels below that of their peers.

These students were tested through The University Education Clinic between October 6, 1989 and June 13, 1990. Students completed the MMTIC as part of a psychoeducational test battery which included an intellectual functioning assessment, either the Wechsler Intelligence Scale For Children Revised (WISC-R) or the Stanford Binet Fourth Edition (SBIV), an achievement test such as the Wide Range Achievement Test Revised Level 1 (WRAT-R1) and a visual-motor perception scale such as the Beery or Bender. After written consent was obtained from a parent or legal guardian, subjects were tested individually by student clinicians. MMTIC results and personal information for each subject were included in a psychological report kept on file at the clinic.

For the normative MMTIC sample, data was taken directly from the MMTIC manual pages 25 and 26 (Meisgeier & Murphy, 1987b). The sample is described in the MMTIC manual in Table 5 on page 20.

Principals of two Catholic elementary schools in Fort Saskatchewan consented to have their students participate in this study as well, and those students became the regular class sample. Students in this sample were primarily from

middle class socioeconomic backgrounds. The study was explained as one that explored the individual differences of students through identification of personality type, and that investigated how such information might help children, parents and educators better understand learning in the elementary school classroom. Teachers were given informational letters (see appendix A), and were asked to collect parental consent forms (see appendix B) for each student in their class. Teachers were also asked to identify students who were having learning difficulties in the regular classroom, as those students' results were excluded from this study.

The researcher went to both schools February 20, 1991 and administered the MMTIC in group settings to each class. Students were given a brief explanation of the MMTIC and instructed how to complete it according to the "Directions for Administration" of the MMTIC included with the question booklets. The indicator was read out loud to two of the grade three classes, and all grade four students, as the vocabulary appeared too difficult for them to read independently in a group setting. Administration took approximately 30 minutes per class. As the researcher administered the indicator, she was also able to collect anecdotal data from both the students and educators.

The researcher returned to the schools March 7, 1991 with the MMTIC results. The principal of one school

requested results for each student, so individual student profile sheets were prepared and presented to the students, along with verbal, whole class explanations. At the second school results were prepared only for those students whose parents had requested them.

Ethical Considerations

All subjects and their parents or guardians in both the learning difficulties and regular class samples were informed that the MMTIC results would be used for research purposes. Written consent was obtained from the parents or guardians, while verbal consent was obtained from the children. The children were told that they were free to stop participating in the study at any time. Results were made available to the students and their parents upon request. The researcher was also available to address questions or concerns either by phone or in person. The students were thanked for their participation (or for "helping the researcher with her homework"), and letters of appreciation were given to the school staff for their cooperation.

Analysis

All protocols for the learning difficulties and regular class samples were hand-scored according to the MMTIC scoring templates. As the statistical program available for analyzing MMTIC data does not yet accept any results that do not show clear type preferences, any results indicating

undecided or U-band scores were excluded from statistical analysis. Clear type results were analyzed using the Selection Ratio Type Table (SRTT) PC Program (Granade, Hatfield, Smith & Beasley, 1987) and chi-square analyses.

Results indicating clear type preferences can be put into standard 16 cell type tables (see Table 5). The SRTT compares one type table with another to determine if there are any significant differences. The type table displayed on the SRTT printout is called the sample table, and is compared to a base population table which is not shown. Each cell of the "type table contains the name of the type, the number in the type, the percentage of the whole sample in the type, the Index for that type, and a probability statement" (McCaulley, 1985, p. 50). (The Index of a type is the percentage of the type in the sample divided by the percentage of the type in the comparison base population.) "Statistical significance of the ratios is established through a series of 2 x 2 chi-square calculations with one degree of freedom. If cell frequencies are 5 or less, the SRTT program computes a Fisher's exact probability instead of chi-square" (p. 50).

Type table results from the learning difficulties sample were compared to both the MMTIC normative and regular class sample results. As well, the regular class sample results were compared to the MMTIC pilot sample table.

Research Questions

In order to explore personality variables as they may influence scholastic achievement, this study compares the psychological type preferences of normally achieving students to those of students experiencing learning difficulties in the regular classroom. Learning difficulties here refer to difficulties in reading, spelling, language arts or arithmetic that are significant enough (usually one or two years below grade level) to cause a parent or teacher to refer a student for assessment. The specific research questions addressed are as follows:

1. How do the clinic sample, the regular class sample, and the MMTIC normative sample compare regarding the percentages of clear versus undetermined type preferences?

2. How do the three samples compare in relation to the percentage distributions of each bipolar preference scale, including U-band cases?

3. What, if any, are the psychological type differences, as measured by the MMTIC, between the clinic referred elementary students experiencing learning difficulties and those students who comprised the normative MMTIC sample?

4. What, if any, are the psychological type differences between the clinic referred students experiencing learning difficulties and students from a regular classroom?

5. What, if any, are the psychological type differences between the regular class students and those in the normative MMTIC sample?

6. What is the nature of the psychological type preference differences between the above sample groups?

7. What are the potential educational implications of such psychological type preference differences?

IV. RESULTS

As this was a comparison study between three sample groups, the subject characteristics of each sample will be outlined first, including a description of the subjects with clearly determined type preferences, and those whose type was undetermined. The type distributions of each sample will also be discussed, followed by a presentation of the results of three type table comparisons: the clinic sample to the MMTIC normative sample, the clinic sample to the local regular class sample, and finally the regular class sample to the MMTIC sample.

Subject Characteristics

Clinic Sample

The 58 male and 26 female students referred to the Education Clinic due to learning difficulties ranged in age from 6 to 14 years (M = 10.1, SD = 1.9) and were in grades 2 through 8. Students were from a wide variety of family backgrounds, but could probably best be described as being from a middle socioeconomic class. (Please see Table 1 for a complete description of the clinic sample.) Clear type preferences were evident for 43% of the sample (23 male, 13 female), whose mean age was 10.3 (SD = 2.1), and mean grade was 4.5 (SD = 2.0). The remaining 57% of the sample (35 male, 13 female) had at least one U-band or undecided score on the MMTIC scales and therefore had an undetermined type

preference. The mean age for these subjects was 10.0 (SD = 2.2), and the mean grade was 4.2 (SD = 1.7).

Table 1

Clinic Sample Description

	Clinic (N = 84)	Clear Type (n = 36)	Undetermined Type (n = 48)
Male	58	23	35
Female	26	13	13
Ages (years)	6-14	6-14	7-14
M	10.1	10.3	10.0
SD	1.9	2.1	2.2
IQ			
M	104.0	103.8	104.0
SD	11.0	9.0	12.0
Grades			
M	4.3	4.5	4.2
SD	1.8	2.0	1.7
Grade Distribution			
2	15	6	9
3	18	10	8
4	16	4	12
5	13	3	10
6	9	5	4
7	8	6	2
8	5	2	3

MMTIC Sample

The normative sample from the MMTIC Manual was comprised of 1499 students (820 male, 679 female) from grades 2 through 8 (M = 4.5, SD = 1.7). Of the total sample, 39% exhibited clear types, while the remaining 61% had at least

one undetermined preference. No further gender, age or grade details were provided for this sample.

Regular Class Sample

The 185 regular class students (93 male, 92 female) tested in a Fort Saskatchewan Catholic elementary school ranged in age from 8 to 13 years (M = 9.7, SD = 1.3), and represented grades 3 through 6. Students appeared to be primarily from middle class families. (Please see Table 2 for a complete description of the regular class sample.) Clear type preferences appeared for 47% (45 male, 42 female) of the sample, whose mean age and grade were 9.9 (SD = 1.2) and 4.6 (SD = 1.1) respectively. 53% of the total sample (48 male, 50 female) reported undetermined preferences, and had a mean age of 9.6 (SD = 1.4) and a mean grade of 4.4 (SD = 1.2).

Table 2

Regular Class Sample Description

	Regular Class (N = 185)	Clear Type (n = 87)	Undetermined Type (n = 98)
Male	93	45	48
Female	92	42	50
Ages (years)	8-13	8-13	8-13
M	9.7	9.9	9.6
SD	1.3	1.2	1.4
Grades			
M	4.5	4.6	4.4
SD	1.2	1.1	1.2
Grade Distribution			
3	50	17	33
4	47	25	22
5	40	21	19
6	47	24	23

Research Question 1: How do the clinic sample, the regular class sample, and the MMTIC normative sample compare regarding the percentages of clear versus undetermined type preferences?

As shown in Table 3 below, the percentages of each sample group that had clearly determined type preferences, and those that had undetermined preferences (at least one U-band score) were fairly similar.

Table 3

Clear versus Undetermined Type Preferences

Sample	Clear type	Undetermined type
Clinic (n=84)	36 (43%)	48 (57%)
MMTIC (n=1499)	578 (39%)	921 (61%)
Regular Class (n=185)	97 (47%)	98 (53%)

Research Question 2: How do the three samples compare in relation to the percentage distributions of each bipolar preference scale, including U-band cases?

In addition to describing what percentage of each sample had a clear or undetermined type preference, it is useful to determine what the distributions of each preference scale, including U-band cases, were. Table 4 demonstrates the preference percentages for each scale, and for each sample group.

Table 4

Type Distribution Percentages

	Clinic (n=84)	MMTIC (n=1499)	Regular class (n=185)
E	54	55	40
I	26	20	31
U	20	25	29
S	40	48	32
N	37	30	49
U	23	22	19
T	8	16	8
F	79	69	82
U	13	19	10
J	24	28	13
P	55	53	72
U	21	19	15

Again, it is clear that the three sample groups have similar U-band distributions when each of the bipolar scales is examined individually. It is important to note this U-band similarity because the remainder of results presented for the samples do not include U-band data, as the statistical program used can not process it. Therefore any differences found during sample type table comparisons in further analysis are not due to differences in U-band frequencies. Other differences between the samples demonstrated in Table 4 will be discussed later when individual sample groups are compared.

Research Question 3: What, if any, are the psychological type differences, as measured by the MMTIC, between the clinic referred elementary students experiencing learning difficulties and those students who comprised the normative MMTIC sample?

Selection Ratio Type Table (SRTT) analyses for the students experiencing learning difficulties at school relative to the students comprising the MMTIC sample are shown in Table 5. Again, no U-band cases are included. For the purpose of clearly presenting the results of this study, emphasis will be placed on using four letter type combinations, but consideration will also be given to results obtained for individual scales and specific two letter combinations where such results are not already explained by the four letter combination results.

Table 5

Type Distributions of the Clinic Sample and Comparison with the MMTIC Normative Sample Excluding U-Band Cases

N = 36

ISTJ	ISFJ	INFJ	INTJ
n=0	n=0	n=0	n=0
(0%)	(0%)	(0%)	(0%)
I=0	I=0	I=0	I=0
ISTP	ISFP	INFP***	INTP
n=0	n=1	n=9	n=0
(0%)	(2.8%)	(25.0%)	(0%)
I=0	I=0.80	I=2.95	I=0
ESTP	ESFP	ENFP	ENTP
n=1	n=9	n=10	n=0
(2.8%)	(25.0%)	(27.8%)	(0%)
I=0.67	I=1.39	I=1.16	I=0
ESTJ	ESFJ	ENFJ	ENTJ
n=2	n=3	n=1	n=0
(5.6%)	(8.3%)	(2.8%)	(0%)
I=1.07	I=0.51	I=0.67	I=0

	N	%	I
E	26	72.2	0.97
I	10	27.8	1.08
S	16	44.4	0.77
N	20	55.6	1.31
T	3	8.4	0.41
F	33	91.7	1.15
J	6	16.7	0.49*
P	30	83.3	1.27*
IJ	0	0.0	0.00
IP	10	27.8	1.57
EP	20	55.6	1.16
EJ	6	16.7	0.64
ST	3	8.3	0.52
SF	13	36.1	0.87
NF	20	55.6	1.46*
NT	0	0.0	0.00
SJ	5	13.9	0.50
SP	11	30.6	1.03
NP	19	52.8	1.47*
NJ	1	2.8	0.42
TJ	2	5.6	0.64
TP	1	2.8	0.24
FP	29	80.6	1.49**
FJ	4	11.1	0.43
IN	9	25.0	2.09*
EN	11	30.6	1.0
IS	1	2.8	0.20
ES	15	41.7	0.96

Note. % = percent of total choosing this group who fall into this type.

I = Self-selection index: Ratio of percent of type in Clinic sample to percent in MMTIC sample.

*$p < .05$. **$p < .01$. ***$p < .001$.

INFP students, who comprised 25% of the clinic sample, were the only type of students significantly (Chi square (1)=10.82, $p < .001$) overrepresented in comparison to the MMTIC sample, where INFPs comprised 8.5% of the group. For the individual scales, P types were overrepresented (Chi square (1)=4.73, $p < .05$), and therefore J types were underrepresented. Compared to the 65.8% P types in the MMTIC sample, the clinic sample had 83.3% P students. This difference on the J-P scale, however, did not in itself account for the significant overrepresentation of the INFP types, as the other four letter types which also include the J-P scale were not affected. When the various possible two letter combinations were examined, it was evident that although the IN and NF combinations were significantly overrepresented at the $p < .05$ level, the largest overrepresentation (Chi square (1)=9.69, $p < .01$) occurred within the FP combination. The clinic sample consisted of 80.6% FP students, compared to 54.0% in the MMTIC sample.

Overall, the clinic sample and the MMTIC normative sample were quite similar when compared according to psychological type preferences. Of the sixteen possible type combinations, they differed on only one four letter combination. There were considerably more students with learning difficulties who exhibited a combined preference for introversion, intuition, feeling and perceiving. There

was also significant overrepresentation of P students in the clinic sample.

Research Question 4: What, if any, are the psychological type differences between the clinic referred students experiencing learning difficulties and students from a regular classroom?

Type table comparisons of the clinic sample students and the students from the regular class sample are presented in Table 6.

Table 6

Type Distributions of the Clinic Sample and Comparison with the Regular Class Sample Excluding U-Band Cases

N = 36

ISTJ	ISFJ	INFJ	INTJ
n=0	n=0	n=0	n=0
(0%)	(0%)	(0%)	(0%)
I=0	I=0	I=0	I=0
ISTP	**ISFP**	**INFP**	**INTP**
n=0	n=1	n=9	n=0
(0%)	(2.8%)	(25.0%)	(0%)
I=0	I=0.35	I=0.87	I=0
ESTP	**ESFP**	**ENFP**	**ENTP**
n=1	n=9	n=10	n=0
(2.8%)	(25.0%)	(27.8%)	(0%)
I=1.21	I=1.36	I=1.05	I=0
ESTJ	**ESFJ**	**ENFJ**	**ENTJ**
n=2	n=3	n=1	n=0
(5.6%)	(8.3%)	(2.8%)	(0%)
I=0	I=3.62	I=2.42	I=0

	N	%	I
E	26	72.2	1.40*
I	10	27.8	0.58*
S	16	44.4	1.25
N	20	55.6	0.86
T	3	8.3	1.04
F	33	91.7	1.00
J	6	16.7	1.45
P	30	83.3	0.94
IJ	0	0.0	0.00
IP	10	27.8	0.69
EP	20	55.6	1.15
EJ	6	16.7	4.83*
ST	3	8.3	2.42
SF	13	36.1	1.12
NF	20	55.6	0.93
NT	0	0.0	0.00
SJ	5	13.9	2.01
SP	11	30.6	1.06
NP	19	52.8	0.88
NJ	1	2.8	0.60
TJ	2	5.6	4.83
TP	1	2.8	0.40
FP	29	80.6	0.99
FJ	4	11.1	1.07
IN	9	25.0	0.70
EN	11	30.6	1.06
IS	1	2.8	0.22
ES	15	41.7	1.81*

Note. % = percent of total choosing this group who fall into this type.

I = Self-selection index: Ratio of percent of type in clinic sample to percent in regular class sample.

*$p < .05$.

An examination of the sixteen possible type combinations showed no significant differences in type distribution between the clinic sample and the regular class sample. However, there was a significant (Chi square (1)=4.38, $p < .05$) overrepresentation of the E type students in the clinic sample when the E-I scale was viewed separately. 72.2% (see Table 6) of the clinic sample students exhibited an E preference, compared to 51.7% (see Table 7) of the regular class sample. The I scale was consequently significantly underrepresented.

Research Question 5: What, if any, are the psychological type differences between the regular class students and those in the normative MMTIC sample?

Finally, the type table comparison results for the regular class students and the MMTIC sample are presented in Table 7.

Table 7

Type Distributions of the Regular Class Sample and Comparison with the MMTIC Normative Sample Excluding U-Band Cases

N = 87

ISTJ n=1 (1.2%) I=0.47	ISFJ n=3 (3.5%) I=0.91	INFJ n=3 (3.5%) I=2.49	INTJ n=0 (0%) I=0
ISTP n=0 (0%) I=0	ISFP* n=7 (8.1%) I=2.33	INFP*** n=25 (28.7%) I=3.39	INTP n=3 (3.5%) I=2.21
ESTP n=2 (2.3%) I=0.55	ESFP n=16 (18.4%) I=1.02	ENFP n=23 (26.4%) I=1.10	ENTP n=1 (1.2%) I=0.60
ESTJ* n=0 (0%) I=0	ESFJ*** n=2 (2.3%) I=0.14	ENFJ n=1 (1.2%) I=0.28	ENTJ n=0 (0%) I=0

	N	%	I
E	45	51.7	0.70***
I	42	48.3	1.87***
S	31	35.6	0.62***
N	56	64.4	1.51***
T	7	8.1	0.39**
F	80	92.0	1.16**
J	10	11.5	0.34***
P	77	88.5	1.35***
IJ	7	8.1	0.99
IP	35	40.2	2.28***
EP	42	48.3	1.00
EJ	3	3.5	0.13***
ST	3	3.5	0.22**
SF	28	32.2	0.78
NF	52	59.8	1.57***
NT	4	4.6	1.02
SJ	6	6.9	0.25***
SP	25	28.7	0.97
NP	52	59.8	1.66***
NJ	4	4.6	0.70
TJ	1	1.2	0.13*
TP	6	6.9	0.59
FP	71	81.6	1.51***
FJ	9	10.3	0.40**
IN	31	35.6	2.98***
EN	25	28.7	0.94
IS	11	12.6	0.91
ES	20	23.0	0.53***

Note. % = percent of total choosing this group who fell into this type.

I = Self-selection index: Ratio of percent of type in regular class sample to percent in MMTIC sample.

*$p < .05$. **$p < .01$. ***$p < .001$.

Four of the sixteen type combinations of the regular class sample were differently represented in comparison to the MMTIC sample. INFP students comprised 28.7% of the regular class sample, which, when compared to the 8.5% in the MMTIC sample, indicated a significant (Chi square (1)=31.38, $p < .001$) overrepresentation of that type. Also significantly (Chi square (1)=4.08, $p < .05$) overrepresented were the students with an ISFP preference. Compared to the 3.5% ISFP students in the MMTIC sample, the regular class ISFPs comprised 8.0% of their sample.

Significant (Fisher's exact probability = .0005, $p < .001$) underrepresentation of the ESFJ type was evidenced by the 2.3% regular class students compared to the 16.3% MMTIC sample ESFJs. Also underrepresented (no students at all) was the ESTJ type ($p < .05$) when compared to a 5.2% representation in the MMTIC sample group.

When the individual preference scales were examined (see the right hand side of Table 7) each of the E, S, T and J preferences were significantly underrepresented in the regular class sample, and the I, N, F and P preferences were consequently overrepresented. In addition, the S and N scale distributions were reversed; the N preference was chosen by more (64.4%) students than the S preference (35.6%) in the regular class sample, while in the MMTIC sample, S outnumbered N 57.4% to 42.6% (see Table 11 of the MMTIC manual p. 25). The other scales were differently

represented, but the preference chosen by the majority of students remained the same.

Research Question 6: What is the nature of the psychological type preference differences between the above sample groups?

Once comparisons have been made between all three sample groups, it is useful to describe both the similarities and differences found through those comparisons. Firstly, it is evident that the clinic sample, the MMTIC sample and the regular class sample had similar percentages of clear versus undetermined type preferences, and that the distribution of U-band scores were also similar. It appeared that the same proportion of students, whether with learning difficulties, from a regular class, or from the normative sample, had at least one undetermined preference score. Clearly, the distribution of clear or undetermined type preferences was not a contributing factor to the overall differences between the three sample groups in this study.

When the clinic sample was compared to the normative MMTIC sample, the only significant combination difference found was an overrepresentation of INFP students. A comparison of the clinic sample to another group of normally achieving students, the sample from the Fort Saskatchewan Catholic schools, did not yield similar results. In contrast to the MMTIC comparison, the regular class

comparison found no significant type combination differences between the regular class and clinic samples.

Conflicting results were evident when individual scale scores were examined as well. While a greater proportion of the students with learning difficulties appeared to favor introversion when compared to the normative sample (see Table 5), when compared to the regular class sample (see Table 6) the reverse was true; extraversion was significantly overrepresented. In summary, inconsistent results were found when the clinic referred students were compared to the normally achieving normative sample students and the normally achieving regular class students.

The comparison of the regular class sample to the MMTIC normative sample showed the same overrepresentation of the INFP students as the comparison of the clinic sample to the MMTIC sample. As well, overrepresentation of the individual P preference was shared by both the clinic and the regular sample when each was compared to the normative MMTIC group. Further examination of the individual preference scales, however, indicated a significant overrepresentation of both intuitive and feeling individuals in the regular class students when compared to the MMTIC students (see Table 7), which is unlike the results gained from the previous two sample comparisons of the clinic sample to the MMTIC and the clinic sample to the regular class sample. Also unique to the regular class - MMTIC comparison was an over-

representation of the ISFP type, and an underrepresentation of the ESFJ and ESTJ types.

In conclusion, the clinic and regular class samples appeared to have the fewest differences between them, and the most similar pattern of differences when each was compared separately to the MMTIC normative sample. The meaning of these general comparisons and the specific similarities and differences found through type table comparison of the three samples, as well as their potential educational implications will be discussed in answer to the final research question in the following chapter.

V. DISCUSSION

Introduction

This study investigated whether elementary school children experiencing learning difficulties in the regular classroom exhibit unique psychological type characteristics or preferences when compared to those students not experiencing difficulties. This chapter will present the major findings of the study, beginning with a comment on the distribution of clear and undetermined type preferences across the three sample groups, followed by a discussion of the primary comparison of the clinic referred students with learning difficulties to the MMTIC normative sample and the consequent educational implications. Thirdly, the findings from the comparison of the clinic sample to the regular class sample, and the regular class to the MMTIC normative sample will be considered in relation to future research. Finally, attention will be given to future use of the MMTIC, including a presentation of the indicator's limitations, its potential for use in assessment, education and counselling, and future research possibilities.

Typology Distributions

As mentioned earlier, the percentage of students who exhibited clear four letter type preferences and those whose scores on at least one bipolar scale were in the undetermined range were consistent across the three sample groups. When each bipolar scale was examined separately,

the number of U-band scores was also similar for each sample group. These findings were expected, as type preferences are still developing in children at the elementary school level. In the assessments I have done recently with children, this has become particularly evident; at times the children answering items from the Murphy-Meisgeier Type Indicator For Children (MMTIC) are not comfortable with the forced choice format, and are inclined to fill in both responses, saying that they like both choices equally well, and do not want to choose between them. This attitude may contribute to the fact that children's scores on the MMTIC often do not reveal clear preferences, instead revealing that children's preferences are "undetermined"; this is not uncommon, and is to be expected according to the test authors.

As discussed in Chapter 2, Jung (1921/1971) asserted that children were born with predispositions to prefer certain psychological type preferences, and that as the children matured and learned through experiences with their worlds, their typological preferences became stronger and more clear. Although Jung claimed type development was a lifelong process and did not offer particular ages for its development, he did state that preferences were usually apparent in behavior from approximately age six. Other researchers (Bayne, 1988; Dilley, 1987; and Murphy & Meisgeier, 1987b) agree that the years of early childhood

and elementary school are the most influential years for type development and differentiation.

The fact that over half of the students in each sample group scored in the undetermined range, however, raises some concern about the usefulness of the MMTIC if it can discriminate for less than half of the students. This is not a concern for those using the indicator with children on an individual basis, as undetermined scores can be interpreted and explained in relation to the unique characteristics of each particular child. That over half the students had undetermined preferences may instead indicate a reality that in fifty percent of children it really is not clear what the preference is. Knowing, for example, that a child has scored in the U-band on the sensing - intuition scale indicates that the child may gain information about the world through the five senses, using facts, numbers and things that are real, as well as through the sixth sense of intuition and the ability to see future possibilities; the S-N preference is not clear. On an individual basis, undetermined scores can provide helpful information about a child and offer a starting point for further communication.

When used for group research purposes, such a high number of undetermined scores can cause difficulties. As the statistical program commercially available for use with the MMTIC does not accept any undetermined scores, more than

half of the initial students tested are not included in the type table comparisons. If different methods of analysis are used, it is still unclear which students have scored in the undetermined range on which of the four bipolar scales. Unfortunately, group research with such ambiguity loses much of its initial concern for the individual differences of children, and begins to focus instead on group tendencies, which while important, are perhaps not as individually relevant.

Despite the lack of clear type results, the finding that the percentage distributions across the three samples compared for this study were not significantly different allowed us to dismiss the number of U-band cases as a factor which may have contributed to the differences found between the remaining students in each sample who exhibited clear type preferences, and whose type results were used for type table comparison. The comparison between the students with learning difficulties referred to the clinic and the normative MMTIC sample will be the primary focus for the following discussion.

Typology Comparison of the Clinic Referred Students and the Normative MMTIC Sample

The comparison of the students with learning difficulties to the normative MMTIC sample is emphasized in this section. Before discussing the results and their possible meanings in detail, it must be noted that the clinic sample used for this study appears to be the most

clearly defined and representative clinic sample with which the MMTIC has yet been used. The sample consisted of students of varying ages and grade levels from many different schools, socioeconomic levels, and with unique family backgrounds. Given the above diversity, the students in this sample were considered to be fairly representative of other students who might be experiencing learning difficulties in the regular classroom.

Research question three asked if there were any significant psychological type differences between the two sample groups being discussed here. As demonstrated in the previous chapter, the answer is yes; INFP, or introverted, intuitive, feeling and perceiving children, were significantly overrepresented in the clinic referred sample. As the INFP type was the only one of the sixteen possible types to be differently represented in comparison to the normative sample, the following section will focus on the characteristics of INFP students and the possible educational ramifications of being a child with that type preference in elementary school.

Who Are INFP Children?

Introverted, intuitive, feeling and perceiving children are warm and sensitive, but often keep their inner thoughts and feelings to themselves, at least until they get to know a person well. They need time to themselves to reflect upon their own thoughts and things that have happened in their

lives. Interactions with one or two friends are preferred by these types, rather than large social activities. INFPs gain information about their world through hunches or a sixth sense of what is possible in the world. The ability to see possibilities and look to future outcomes is shared by many INFPs.

Children with this type combination value the opinions of others, and most respect those who understand the values and goals of the INFP type. They may be subject to guilt feelings and self-defeating behavior. INFPs have a flexible approach to life, and enjoy surprises, spontaneous events and having fun. They work best at things that matter to them, and are very diligent when they really care about someone or something. According to Myers (1987), INFP individuals "may feel such a contrast between their ideals and their actual accomplishments that they burden themselves with a sense of inadequacy" (p. 17). This tendency, along with possible vulnerability and loss of self-confidence, may be especially indicative of those INFP students who are experiencing learning difficulties in the regular classroom.

INFP Children in the Classroom

As documented earlier, the traditional elementary school classroom is structured for ESFJ, or extraverted, sensing, feeling and judging learners. It is run primarily by ESFJ teachers, and is filled with a majority of ESF (combined with J or P) students. How then do the INFP

students fit in? In an environment which values sociability, having many friends, working in groups, talking and reading aloud, introverted children may feel threatened and out of place. Their preference for quiet time and working by themselves may be interpreted as unwillingness or inability to participate and they may be seen as shy outsiders, or often overlooked altogether.

INFP children introvert their most important ideas and their deepest feelings, so that peers and teachers may not have enough information about these children to really understand them, or their psychological type preferences. If INFP children are presented with information in the regular classroom by methods that cater primarily to the majority of sensing students (many numbers and facts, worksheets, manipulative objects, and questions with right and wrong answers for example), their intuitive ability may not be utilized to its full extent. They may become bored with routine and simply give up trying to express their innovative or creative solutions and ideas.

Recent research by Fourqurean, Meisgeier and Swank (1990) suggested that the tendency of introverted intuitive children is to "prefer both auditory and visual presentation of information" (p. 233), but that they do not tend to appreciate a large variety of learning methods. Once a preferred method of instruction is found, they are content to continue learning from that one method. In addition,

they found that perceiving type students tended to score low on measures of motivation, and preferred an unstructured, "noisy learning environment where they could manipulate objects and materials" (p. 233). Although this information is helpful for further understanding of INFP children, it also demonstrates the difficulty of looking at type preferences in different combinations. For instance, perceiving children may tend to prefer noisy learning environments, but to generalize this preference to INFP children fails to take into account the introverted nature of the INFP student who would probably not enjoy working in a loud setting.

Feeling is the dominant function for INFP children, but it is tuned primarily to their inner world of personal thoughts and ideas, so that it at times makes them sensitive or vulnerable to disapproval or criticism. As well, they may be very self critical, or misinterpret the actions or words of others to be personal rebuffs. INFP children feel different and less accepted than other children, which is not surprising given that the school environment may be so dissimilar to their characteristic manner of interpreting and interacting with their world. These children are often not comfortable in their surroundings, appear apathetic, or unhappy, and feel forced to be someone they are not.

It is interesting that the children experiencing learning difficulties in the regular classroom who were

overrepresented in comparison to the normative group were INFP children, whose dominant or most preferred function is feeling. Bireley and Hoehn (1987) investigated learning styles of learning disabled students and normally achieving students using The Learning Preference Inventory, which is also based on Jung's typology. They found that learning disabled children had a decision making process which appeared "to be strongly related to feelings" (p. 440). Bireley and Hoehn stressed the importance of using this sensitivity toward feeling in the classroom. "It should be noted as well that dealing with the inevitable problems of being exceptional may be magnified by the sensitivity of the feeler" (p. 440). INFP students, who are particularly at risk for being oversensitive, should be aided to understand their feelings about inadequacy through either counselling or effective teaching. Emphasis should be given to the affective components of education, as well as to overcoming the discrepancies between potential and scholastic achievement.

It is not difficult to envision why children who are introverted, intuitive, feeling and perceiving may be more likely to experience learning difficulties in the regular classroom. Their cognitive style, or most comfortable modes of obtaining information, making decisions, and approaching life in general do not easily fit with the majority of other students' styles. Because INFP students often feel left

out, unworthy of acceptance, and inadequate in relation to their outgoing, talkative peers who seem much more comfortable with the regular class structure and elementary learning style, it is understandable that they may be at higher risk for learning difficulties. INFP students may be struggling against their preferred modes of functioning, and, in addition, may not be understood or accepted for who they are. In essence, their learning style is in conflict with their learning environment.

> It must be emphasized that learning failure is not wholly a matter of learning style, and not all the reasons for failure will be discovered by studying the ways in which children cope with learning; some reasons reside in neural imperfections, which are hidden from our view and whose effects are not wholly visible in behavior. (Stott, 1985, p. 171)

While there are obviously many other factors which contribute to learning difficulties experienced by elementary school children, the contrast between preferred personality type characteristics and learning environment can not be ignored. For children who appear to have adequate intellectual ability, yet are still performing considerably below grade appropriate levels, the fact that their psychological type preferences are different from many of their peers may be an important factor which contributes

to their feelings of inadequacy, dislike of school, low self esteem and generally feeling different and misunderstood. The above descriptions have been compiled from various literary descriptions of INFP individuals, from personal communication with INFP children experiencing learning difficulties, and from other adults who interact with such children. These findings and conclusions are also presently being replicated in some of the work being supervised by Dr. Fred Boersma (personal communication, April, 1991).

Dr. Boersma supervises both fourth year elementary education students and graduate educational psychology students who are learning about typology and using the MMTIC with various children with learning difficulties. These university students have found that the children with INFP type preferences again report being misunderstood by friends and teachers, and that when remediation is tailored to best suit the individual INFP child, progress is seen quickly. In addition, when the university students explore their own memories of early education, the INFP adults again remember feeling inadequate, different and unaccepted in school, and remember hating their elementary school years.

Interacting with INFP Children

Unfortunately, these feelings of lack of acceptance and understanding do not end at school; INFP children may feel this way in relation to friends outside of school, to their parents, siblings, other relatives, and perhaps may not even

quite understand themselves or how they are different from others. It is not suggested that these children be taught or interacted with in a manner which constantly and specifically addresses their preferred modes of functioning, as this would deprive the children of the opportunity to practise and further develop their less preferred type characteristics. Nor is it recommended that children be asked to stop relying on their most preferred or dominant function. According to Provost (1990), children's overall development may be slowed down if the dominant function is suppressed. As Saracho (1983) stated, "educators and researchers need to further investigate the match and mismatch relationship on cognitive style before promoting the quest for educational implications of compatability in cognitive styles between students and teachers in the classroom setting" (p. 188). However, it is recommended that teachers and parents make every effort to understand and appreciate the unique characteristics of INFP children, and how these characteristics affect the learning process for the children. It is also important that adults be aware of their own type preferences, in order that they understand how their preferred ways of parenting, or teaching influence their interactions with children.

Children of all types want to feel unique and appreciated. Parents and educators must attempt to understand the special preferences of children, and provide

a variety of experiences which allow them to develop their own gifts in their own ways. At school, if children are having trouble learning in the regular classroom, perhaps particular attention should be given to whether or not they are being allowed or encouraged to express and develop their own preferences. As introverted, intuitive, feeling and perceiving children may be more difficult to understand, and may experience considerable frustration at not fitting in to the regular classroom environment, additional patience and effort will be required by the teacher to help INFPs feel accepted and appreciated. This "does not imply changing children into something they are not. Instead it means taking children as they are and using their inclinations, strengths, and preferences in order to draw out from them the very best that they can give" (Neff, 1988, p. 120).

Additional Findings From Type Table Comparisons

In addition to the primary comparison between the clinic referred students with learning difficulties and the normative MMTIC sample, type comparisons were done between the clinic sample and a regular class sample, and between the regular class sample and the MMTIC sample. Findings from the comparison of the clinic sample to the regular class sample did not indicate any significant four letter type combination differences. When the regular class students were compared to the normative sample, however,

overrepresentation of the INFP and ISFP types was found, as well as underrepresentation of the ESFJ type.

These typological differences were not expected, as the regular class sample should have yielded results similar to those for the MMTIC sample. The regular class sample used for this study is typologically quite different from the normative sample, and although the reasons why are not evident, it can be postulated that the regular class sample is not representative of the much larger normative sample. It is possible that because the regular class students tested with the MMTIC were from two Catholic schools, their learning environments may have been qualitatively different from those of the students used for the normative sample. Perhaps the religious component inherent in the Catholic school system may have been reflected in the typological preferences adopted by the students.

There are probably other reasons why the regular class sample used in this study does not appear representative of the normative group, but more extensive exploration of the sample and its surroundings would be necessary before further possible explanations could be offered. Due to the much smaller sample size, and the significant differences between the regular class sample and the normative group, it was decided that for practical and discussion purposes it would be most relevant to focus on a comparison of the clinic referred students with learning difficulties to the

normative group, rather than on a comparison with the regular class sample. A discussion based on comparison with the regular class sample would have involved many unexplained influences and have been, at best, inconclusive.

Data gathered from the regular class sample was useful, however, as it added to the slim Canadian MMTIC research results available. In addition, the fact that the regular class sample was not representative of the normative sample lent support for conducting MMTIC research and comparisons within the same group. For example, it would be most useful to compare a group of children experiencing learning difficulties with a regular class sample drawn from the same school district, so that findings would be most relevant and helpful for implementing remediation strategies.

Future Use of the MMTIC

The Murphy-Meisgeier Type Indicator For Children has been available for use since 1987, but very little research has been conducted with the instrument. The findings of this study offer support for continued use of the indicator, but before that support is explained, several limitations of the MMTIC must be noted. One of the general limitations of the MMTIC is the fact that, as mentioned earlier, no additional reliability or validity evidence has been made available since initial publication of the MMTIC manual. This may be due to the fact that the indicator is commonly administered by individuals who lack sufficient theoretical

understanding of psychological type theory and measurement to effectively interpret and use the results obtained.

The MMTIC appears to be viewed as an indicator that is neither "right" nor "wrong". The results are not "bad", that is, they do not indicate any pathology and, hence, the indicator itself is seen as harmless. It is precisely because of the indicator's nonjudgemental appearance that the MMTIC tends to be overused with children. The MMTIC is treated as an interesting test which presents commonsense personality information in an easy to understand format. Unfortunately, it is the MMTIC's uncomplicated face value that leaves room for misuse and misinterpretation.

When used for research purposes, the MMTIC has two primary disadvantages. The large percentage of undetermined type preferences makes data analysis and generalization of results difficult, as well as limiting research of the four letter type combinations to less than half of the individuals of each sample. Secondly, group research with the MMTIC appears to lose much of the focus on individual differences and the unique personalities of children, as general typological trends become most important. Despite these limitations, however, the MMTIC can be a potent educational, assessment, and counselling tool if used responsibly.

The MMTIC was designed to help children, along with parents and educators, better understand their unique ways

of gathering information, making decisions, and approaching life in general. If the indicator is used with children on an individual basis, and is administered and interpreted by qualified people (those knowledgeable about measurement and test theory), the MMTIC can help children learn to appreciate and understand their own and others' type preferences. To facilitate this understanding, MMTIC results must be explained fully to children, parents and teachers, by someone knowledgeable about type theory in relation to children, and about what the implications of knowing a child's type may be.

Having administered and explained the MMTIC to almost two hundred children in both group and one to one settings for this study, I was fascinated by how excited and interested the students appeared. The MMTIC has "fun" questions, an easy to read report form, and most importantly, gives children information about what interests them the most - themselves! As I discussed type preferences with the students, I realized how important it was to allow the children to talk about their type preferences, and to let them know that they could disagree with their results on the MMTIC. The MMTIC is not flawless, and several times students approached me to say that they felt they were more introverted than extraverted, or that they were judging rather than perceiving, based on the written descriptions of the various types. In the group settings I at times became

frustrated, because I was not able to give students the individual attention and time to let them fully process the type information provided to them. I can not stress strongly enough how important individual explanations of type results are for children. The MMTIC, if it is to be used for its intended purpose of helping children and those involved with them to better understand and appreciate type preferences, must be administered and explained on an individual basis in relation to a particular child, and the typological information gained must be remembered and put to effective use.

Directions for Further Research

Future studies exploring the influence of children's MMTIC type preferences on their ability to function effectively in the regular classroom are warranted, especially in relation to students experiencing learning difficulties, and might:

1) compare samples of children with learning difficulties to normally achieving children in the same school;

2) include longitudinal research which follows children with learning difficulties through several grades to see if knowledge and use of psychological type preferences can help improve scholastic achievement;

3) investigate the effects of placing children in classrooms with teachers whose type most closely matches their own (i.e. type matching or "teaching to type");

4) continue to collect Canadian MMTIC data for comparison purposes;

5) use qualitative methodology to explore the personal experiences of individual children of various type to begin to more fully understand what it means to "be" a certain type.

Concluding Remarks

As research and use of psychological type with children is still in the preliminary stages, studies such as this one only begin to offer support for existing conjectures, and suggest areas worthy of further research. For children with learning difficulties in particular, the Murphy - Meisgeier Type Indicator For Children may be able to provide useful information about personality characteristics which influence learning style. Educational implications are tentative, but making parents, teachers and students aware of the possible influences of typological preferences may be the first step in using type to enhance students' learning potential in the classroom.

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Appendix A

February 11, 1991

Dear Parent/Guardian:

As you are aware, children all have unique differences and abilities which can be used to their advantage in the classroom. By aiding teachers, friends, and the children themselves to an increased understanding of these differences, it may be possible to improve the learning environment for all concerned.

I am a Master's student completing my degree in School and Counselling Psychology at the University of Alberta, and am doing research into the individual differences in children through the identification of various psychological personality types. I have collected the majority of my data at the University Education Clinic, under the supervision of Dr. Henry Janzen but am still in need of a comparison group of students.

With your permission, I would like to ask your child to complete a pencil and paper questionnaire called the "Murphy Meisgeier Type Indicator for Children", which reflects the ways children focus their attention, how they gather information, make decisions, and approach life in general. It is a 70 item indicator which asks the child to choose his or her preferred response from two choices, neither of which is right or wrong. A question similar to those on the indicator might be:

1. You like to
   A. read books about animals
   B. read books about machines.

The indicator takes about one half hour to complete, and all results will be kept confidential. Your child will be free to withdraw from the study at any time, and you may also withdraw consent if you have any concerns. I will also be available to answer questions that you or your child may have regarding the results of this indicator. I will be coming to your child's classroom in February to administer the indicator, and would appreciate your child's assistance. To make sure I am operating with your understanding and consent, I ask that you complete the form below and return it to your child's teacher. Thankyou for your cooperation.

Sincerely,

Susan Danielsen (Student Clinician)

_____ has my permission to complete the Murphy Meisgeier Type Indicator for Children during class time.

Signature of parent/guardian: _____

Date: _____

Appendix B

February 11, 1991

Dear Classroom Teacher:

Thank you for allowing your students to participate in the study I am conducting. I appreciate the opportunity to come in to your class, and hope we will be able to arrange a time that will cause the least disruption to your schedule.

Attached please find a class set of parental consent forms that must be signed before any of the students may complete the questionnaire. (Please read the consent letter as it gives more detail about what I will be doing in my research and in your classroom.) I would appreciate your assistance in distributing the forms and collecting the signed portions as soon as possible.

Once the forms are signed I will be coming to your class for approximately 30 to 45 minutes to have the students complete the Murphy-Meisgeier Type Indicator for Children. At that time I would also ask that you provide me with a list of all the students in your class. On that list, could you also please indicate any students in your class who are receiving help outside regular class time for any learning difficulties, or any students who you feel are in need of such services? I need to know which children are receiving outside help such as resource room or learning assistance, because I will not be using their responses as part of my regular classroom sample. Thank you for helping me in this area, as you know your students and their abilities best.

If you, your students, or their parents have any further questions or concerns, please feel free to contact me at home or through the University. Thank you again for your assistance, and I look forward to meeting and working with you.

Sincerely,

Susan Danielsen
Student Clinician
home 438 4513
mssg 492 5245